CLAIMS

We claim:

1. A non-naturally occurring variant TNF-α protein comprising an amino acid sequence that has at least one amino acid substitution as compared to the wild-type TNF-α sequence, wherein said variant TNF-α protein will preferentially interact with the wild-type TNF-α to form mixed trimers incapable of activating receptor signaling.

2. A non-naturally occurring TNF-α protein according to claim 1 wherein said TNF-α protein has from 3 to 5 amino acid substitutions as compared to wild-type TNF-α sequence.

3. The non-naturally occurring TNF-α protein according to claim 1, wherein said substitutions are selected from the group of substitutions consisting of K112D, Y115T, D143K, D143R AND Y115I.

4. A recombinant nucleic acid encoding the non-naturally occurring TNF-α protein of claim 1.

5. An expression vector comprising the recombinant nucleic acid of claim 5.

6. A host cell comprising the recombinant nucleic acid of claim 5.

7. A host cell comprising the expression vector of claim 6.

8. A method of producing a non-naturally occurring TNF-α protein comprising culturing the host cell of claim 7 under conditions suitable for expression of said nucleic acid.

9. The method according to claim 9 further comprising recovering said TNF-α protein.

10. A pharmaceutical composition comprising a non-naturally occurring TNF-α protein according to claim 1 and a pharmaceutical carrier.

11. A method for treating a TNF-α related disorder comprising administering a non-naturally occurring TNF-α protein to a patient.

12. The method according to claim 12, wherein said condition is rheumatoid arthritis.